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XXIV.—*Natural History Notes from H.M. Indian Marine Survey Steamer 'Investigator,' Commander C. F. Oldham, R.N.—Series II., No. 10. Report upon some Mollusca dredged in the Bay of Bengal and the Arabian Sea. By EDGAR A. SMITH.*

[Plates III.-V.]

SEVERAL reports by Dr. A. Alcock and the late Professor J. Wood-Mason upon the Fishes, Crustacea, and other marine Invertebrates obtained during the surveys of the 'Investigator' have already appeared in the 'Annals' during the last five years; but only some brief observations have been made upon the Mollusca. These were published in 1891 in vol. vii. pp. 15-19, and vol. viii. pp. 443-448.

Previously to these surveys there does not appear to have been any dredging carried on in this part of the Indian Ocean at any great depths, and therefore it is not surprising that most of the species obtained at over a hundred fathoms are new to science. Up to the present nothing generically new has been discovered; but of the species some are especially interesting as bearing a close resemblance to others which occur in remote parts of the world. For instance, the *Lucina bengalensis*, dredged off the delta of the Godaveri in 410 fathoms, with the exception of a slight difference in form, is very like *L. lamellata* from 245 fathoms in the Straits of Magellan. *Turbo (Cantrainea) indicus* is possibly only a variety of *T. peloritanus*, a deep-water form occurring in the Mediterranean and Atlantic. The species of *Amussium* have

close West-Indian and Atlantic representatives in *A. Dalli* and *A. lucidum*; and *Dentalium profundorum*, from 675 fathoms, and *Limopsis indica*, from 142–400 fathoms, are respectively only slight modifications of *D. capillosum* and *L. pelagica*, from the depths of the Atlantic.

A few forms of *Dentalium* are known, the shells of which are not regularly tubular. In *D. ensiculus*, Jeffreys, the shell is much compressed, and in *D. compressum*, Sowerby, a handsome Japanese species, in section it is oval. *D. insolitum* of the present collection is also remarkable on account of its irregularity in this respect; the two sides are a little flattened and slope or converge somewhat towards the excurved side, which is more convex than the opposite side. The two Pleurotomids, from 675 and 1043 fathoms, are also worthy of special attention, as they have quite the appearance of northern forms or inhabitants of cold regions, having the whitish chalky surface of some of the boreal Buccinids and *Chrysodomi*.

In addition to the species now enumerated and described, the following, also from dredgings of the 'Investigator,' have already been characterized as new:—

1. *Rostellaria delicatula*, Nevill, 1881.
2. *Solariella metalica*, Wood-Mason and Alcock, 1891.
3. *Pleurotoma symbiotes*, iid.
4. *Verticordia (Euciroa) eburnea*, iid. (= *V. optima*, Sowerby, 1894).
5. *Nucula (Acila) Fultoni*, Smith, 1892.
6. *Syndesmya maxima*, Sowerby, 1894.
7. *Glaucanome sculpta*, Sowerby, 1894.

The types of the species, hereafter described, will be deposited in the Indian Museum at Calcutta; but one or more representatives of each have been retained, by permission, for the National Collection in the Natural History Museum at South Kensington.

1. *Conus australis*, Chemnitz. (Pl. III. fig. 1.)

Conus australis, Chemn., Reeve, Conch. Icon. vol. i. pl. iv. fig. 49; Sowerby, Thes. Conch. vol. iii. pl. cevi. fig. 486; Kiener, Coq. Viv. pl. xli. fig. 2.

Hab. Swan River (Reeve); Australia, Moluccas (*Tryon*); China (coll. *Cuming*, and Sowerby for *C. laterculatus*); off Malabar coast, lat. 11° 05' 45'' N., long. 75° 04' 08'' E., in 36 fathoms ('*Investigator*').

C. gracilis, *C. duplicatus*, and *C. laterculatus*, all of Sowerby, are synonyms of this species. The Malabar

specimens, although they appear to be adult, are very small, measuring only about 43 millim. in length. Two out of the three examples in the present collection exhibit a considerable amount of nodulation upon the transverse ridges of the body-whorl, a feature commonly seen in larger forms of the species. With the exception of the considerable difference in size these specimens are fairly typical, the general form, the spire, the colour and disposition of it, and the sculpture being precisely the same as in normal specimens. Sowerby's figure in the 'Thesaurus,' although a trifle slender, gives a very good idea of the general appearance of the present examples.

2. *Conus planiliratus*, Sowerby. (Pl. III. fig. 2.)

Conus planiliratus, Sow. Proc. Zool. Soc. 1870, p. 255, pl. xxii. fig. 1; Thes. Conch. vol. v. p. 265, pl. dxii. fig. 723; Weinkauff, Conch.-Cab. ed. 2, p. 352, pl. lxxv. fig. 6; Tryon, Man. Conch. vol. vi. p. 73, pl. xxiii. fig. 76.

Hab. Off Calicut, west coast of South India, in 45 fathoms ('Investigator'); China Sea (Sowerby).

The original specimen described by Sowerby, now in the British Museum, is not quite adult. The largest example from Calicut, which appears to be full-grown, is 58 millim. in length and 27 in diameter at the shoulder.

3. *Conus coromandelicus*. (Pl. IV. figs. 1, 2.)

Testa breviter fusiformis, albida vel pallide carnea, epidermide dilute olivacea induta, spiraliter subnodose costulata et sulcata; spira conica, acuta; anfractus 10, sutura canaliculata sejuncti, superiores quinque in medio angulati, cæteri fere plani, costulis 3-4 spiralibus, subnodulosis cincti, ultimus paulo infra suturam ad costam sublævem subangulatus, inter costas lineis incrementi conspicuis striatus; apertura angusta, intus pallide fuscescens; labrum tenuissimum, intus sulcatum, ad marginem crenulatum, superne profunde sinuatum.

Longit. 37 millim., diam. 14; apertura 25 longa, 3½ lata.

Var. Testa lævior, costis transversis haud nodosis.

Hab. Off Coromandel coast, lat. 14° 18' 15" N., long. 80° 18' 30" E., in 80-110 fathoms; and lat. 15° 4' 7" N., long. 80° 25' 7" E., in 128 fathoms.

The epidermis of this species is darker upon the spiral ridges than in the interstices or grooves between them, and is particularly dark between the faint nodules, so that the ridges have a somewhat spotted appearance. They are about twenty-six in number upon the body-whorl, of which two or three are above the slight angle or shoulder, which is marked by a peculiar, somewhat flattened, broad and smooth or

scarcely nodulous costa. This winds up the spire a little above the suture, which consequently has a channelled appearance. The lip is very thin, finely undulated at the edge, and grooved within, the grooves corresponding to the external ridges.

It belongs to that section of the genus which includes *C. Orbignyi*, *C. cancellatus*, &c., which have the surface ornamented with transverse grooves and ridges. It is not sufficiently similar to any known species to suggest a comparison.

The variety differs only in having the ridges plain instead of nodulous. Some of the upper whorls, however, are noduled at the angle, as in the type.

4. *Conus turriculatus*, Sowerby.

Conus turriculatus, Sow. Thes. Conch. vol. iii. p. 328, pl. cclxxxviii. figs. 643, 644; Weinkauff, Conch.-Cab. ed. 2, p. 377, pl. lxi. figs. 10, 11; Tryon, Man. Conch. vol. vi. p. 75, pl. xxiii. fig. 89; Smith, Report 'Alert' Coll. p. 487.

Hab. Cheduba Island, Bay of Bengal, 20-30 fathoms ('Investigator').

I have already shown, in the 'Alert' Report, that *C. acutangulus*, Kiener (non Chemnitz), and *C. gemmulatus*, Sowerby, are synonymous with this species. It occurs in the Mascarene Islands, the China Sea, and the Philippines.

Tryon places this species among the synonyms of *C. cancellatus*, from which, however, it is perfectly distinct.

5. *Pleurotoma congener*. (Pl. III. figs. 4, 5.)

Testa fusiformis, robusta, alba, infra suturam pallide rufo-cingulata, inter tuberculos circa medium anfractuum rufo-punctulata; anfractus 10-12, convexi, infra suturam cingulo duplicato et circa medium altero planato tuberculato cincti, liris spiralibus paucis tenuibus incrementique lineis conspicuis ornati, ultimus infra cingulum liris 5-6 striisque intercalentibus cinctus, inferne angustatus, in rostrum productus; columella leviter obliqua, rectiuscula; labrum tenue, ad cingulum tuberculatum incisum; apertura intus lirata.

Longit. 52 millim., diam. 17; apertura cum canali 22 longa, in medio 7 lata.

Hab. Bay of Bengal, 128 fathoms; west of Colombo, Ceylon, 142-400 fathoms.

This species might almost be regarded as a short robust form of *P. Kieneri*, Doumet*, which it resembles in many

* Mag. de Zool. 1840, pl. x., = *Pl. carinata*, Reeve (non Gray), Con. Icon. fig. 56. *Pl. speciosa*, Reeve, l. c. fig. 9, = *P. carinata*, Gray, Griffith's Anim. Kingdom, vol. xii. p. 599, pl. xxiii. fig. 2.

respects. It differs in having a thicker stouter spire, a shorter canal, a thicker girdle at the top of the whorls, and a broader tuberculated zone around the middle.

The specimens obtained off the west of Ceylon are peculiar for a kind of nodule or swelling on the upper part of the columella. They are rather smaller, although full-grown, than the examples from the Bay of Bengal.

Of the two specimens examined one is 45 millim. in length, the other only 40.

6. *Pleurotoma (Surcula) symbiotes*, W.-M. & A.
(Pl. III. figs. 7, 8.)

Pleurotoma symbiotes, Wood-Mason and Alcock, Ann. & Mag. Nat. Hist. 1891, vol. viii. p. 444, figs. 13 a, b.

Testa fusiformis, sordide albida, epidermide tenuissima pallide olivacea hic illic induta; anfractus 10, superne concavi, in medio nodosi, striis spiralibus lineisque incrementi tenuibus flexuosis sculpti, sutura leviter undulata sejuncti, ultimus antice angustatus; apertura intus fuscescens, lævis, longit. totius $\frac{1}{2}$ paulo brevior; labrum in medio prominens, valde arcuatum, superne late sinuatum; columella lævis, callo tenui pallide fuscescente induta, in medio parum arcuata, inferne obliqua; canalis anterior latus, paulo recurvus.

Longit. 57 millim., diam. 19; apertura cum canali 27 longa, 9 lata.

Hab. Off southern extremity of India, lat. $7^{\circ} 04' N.$, long. $76^{\circ} 34' 15' E.$, in 1043 fathoms.

The nodules upon the central portion of the whorls (about twelve in number on the penultimate) become gradually more and more acute towards the top of the spire, where the suture also is more wavy than lower down the shell, becoming quite even in the last volution. The sinus in the outer lip, although wide, is not deep, and is situated in the depression or concavity below the suture. Neither the spiral lines nor the acuteness of the nodules upon the upper whorls are well shown in the figures referred to.

7. *Pleurotoma (Surcula) subcorpulenta*.
(Pl. III. fig. 6.)

Testa *S. symbioti* similis, sed major, anfractibus supra minus excavatis, striisque spiralibus paulo prominentioribus, columella in medio plica obliqua plus minus prominente instructa.

Longit. 80 millim., diam. 29; apertura 42 longa, 16 lata.

Hab. Off Colombo, Ceylon, lat. $6^{\circ} 32' N.$, long. $79^{\circ} 37' E.$, in 675 fathoms.

It is probable that an extended series of specimens of this form and of *S. symbiotes* might prove that they ought to be regarded as variations of one and the same species. The difference of size, however, is considerable, and the relative length of the apertures is rather different. The colour of the aperture and columella is the same in both, and the character of the labral sinus is similar. One of the two specimens under examination has a distinct oblique fold on the columella, such as we find in *Fasciolaria* and *Latirus*, but placed somewhat higher up; it is only barely indicated in the second example, and is just traceable, in the form of a very slight prominence, in both specimens of *S. symbiotes*.

The operculum is normal, narrow, and pointed at the terminal nucleus.

8. *Murex malabaricus*. (Pl. III. fig. 3.)

Testa ventricose fusiformis, antice rostrata, albida, fascia unica rufa in medio anfractuum superiorum, tribus in anfr. ultimo ornata, supra rostrum rufo-fusco tincta, varicibus tribus æquidistantibus instructa; anfractus 9-10, convexiusculi, costis longitudinalibus parum prominentibus paucis nodosis instructi, lirisque tenuibus spiralibus numerosis ornati; varices valde prominentes, breviter frondosi, serrati, in medio anfractuum spina recurva acuta excavata instructi, in anfr. ultimo spinis 3-4 rectiusculis inferne muniti; apertura rotunde ovata, alba, indistincte trifasciata; labrum porrectum, ad marginem leviter crenulatum, rufo-fusco punctatum; labium valde prominens, album, leviter reflexum, superne labro junctum; rostrum rectiusculum, fere clausum, longit. totius $\frac{1}{2}$ adæquans; operculum ovatum, fortiter et subeocentrice costatum.

Longit. 114 millim., diam. 37; canalis ab apertura ad extremitatem rostri 58 longus; apertura 22 longa, 15 lata.

Hab. Off Malabar coast, lat. $11^{\circ} 05' 45''$ N., long. $75^{\circ} 04' 08''$ E., in 36 fathoms.

This handsome species is well characterized by its form, the style of coloration, and sculpture. The recurved hollow spine upon the varices about the middle of the upper whorls is a prominent feature in the ornamentation. The longitudinal slender costæ, which are nodulous where certain of the transverse liræ cross them, increase in number with the growth of the shell. In the last whorl there are about six in the space between any two varices, five to four on the penultimate, four to three on the preceding volution, two and then only one upon the uppermost whorls.

The transverse colour-bands, when examined closely, are found to consist of groups of coloured liræ.

In some respects this species resembles *M. Beauv.*, Fischer and Bernardi, from the West Indies. It differs, however, in form, the rostrum being longer, and the spiral liræ are more numerous.

9. *Nassaria coromandelica.* (Pl. IV. fig. 3.)

Testa breviter fusiformis, solida, albida; anfractus 10, primi tres (nucleus) lævigati, convexi, cæteri convexiusculi, costis longitudinalibus numerosis leviter arcuatis, lirisque spiralibus circiter tres vel quatuor supra costas nodosis cancellati, inter liras striis filiformibus cincti, ad suturam quasi canaliculati, ultimus convexus, infra medium contractus; apertura supra pyriformis, inferne late canaliculata, salmonæo-rufa tincta: labrum ad marginem acutum, varice validissimo externo incrassatum, intus liris 7-8 haud ad marginem attingentibus instructum; columella superne arcuata, callo tenui induta, transversim lirata et tuberculata, lira suprema cæteris majori; canalis latus, profundus, obliquus, leviter recurvus.

Longit. 35 millim., diam. 15; apertura cum canali 17 longa, 6½ lata.

Hab. Off Coromandel coast, lat. 14° 05' 55" N., long. 80° 25' 20" E., in 112-138 fathoms.

The spiral liræ are alternately larger and smaller, the former being nodulous on crossing the longitudinal costæ. Of the liræ within the aperture, the third from the top is rather more prominent than the rest. It differs from *Nassaria nivea* (Gmelin) in its larger size, more open, less oblique, and less recurved canal, the very strongly developed post-labral varix, the colour within the aperture, different tuberculation on the columella, and fewer liræ within the outer lip.

The *Triton carduus* of Reeve, which is united with *N. nivea* by Tryon (Man. Conch. vol. iii. p. 221), has no relationship whatever with that species. It undoubtedly belongs to the Tritoniidæ, and may be placed in the group Colubraria. Fine examples in the Museum collection were received from M. Robillard from the Mauritius. The type of *T. carduus* is a half-grown shell, the adult form having a length of 22 millim. Reeve's figure ('Triton,' fig. 95) is twice the length of the shell delineated. The reference to Gmelin should be p. 3495, and not 3504, as given by Tryon, the *Buccinum niveum* described upon that page being a species of *Terebra*.

The generic name *Nassaria* is rejected by Fischer (Man. Conch. p. 631) in favour of *Hindsia*, but upon what grounds is not evident. *Nassaria*, as established by Link, included a variety of species which are at the present time ranged

under *Nassa*, *Phos*, *Clionella*, and *Cantharus*; but the first species he cites (under the name of *Nassaria lyrata*) is what we now call *Nassaria nivea*. Probably the Messrs. Adams, regarding this as the type of *Nassaria*, gave it preference to that of *Hindsia*.

10. *Latirus andamanicus*. (Pl. III. fig. 9.)

Testa fusiformis, albidâ, epidermide tenui pallide olivacea induta; anfractus 11, supremi tres (nucleus) albi politi convexi, cæteri convexiusculi, sed infra suturam leviter concavi, costis longitudinalibus circiter 8 (in anfractibus ult. et penult. plus minus obsoletis) instructi, liris tribus supra costas nodosis cincti, striisque filiformibus undique ornati, ultimus inferne longe et recte rostratus; apertura alba, cum rostro longit. totius $\frac{1}{2}$ paulo superans; columella leviter arcuata, plicis duabus obliquis parum conspicuis instructa; canalis fere rectus, angustus, elongatus, ad extremitatem vix recurvus.

Longit. 50 millim., diam. 12; apertura cum rostro 27 longa, $5\frac{1}{2}$ lata.

Hab. Off Port Blair, Andaman Islands, in 112 fathoms.

In general aspect this species resembles certain forms of the genus *Fusus*, but as two oblique folds, although but very feebly developed, are present upon the columella, it seems advisable to locate it in *Latirus*.

The longitudinal costæ are more prominent upon the upper portion of the spire, and become almost obsolete upon the body-whorl. The outer lip is very thin in both the shells examined, but it is likely to become somewhat thickened in more adult specimens, and probably would develop a few internal liræ. Both examples were more or less invested by a species of sea-anemone.

11. *Pyrula Dussumieri*, Kiener.

Pyrula Dussumieri (Valenciennes, MSS.), Kiener, Icon. Coq. Viv. p. 25, pl. xi.; Tryon, Man. Conch. vol. vii. p. 266, pl. v. fig. 30.

Ficula Dussumieri, Reeve, Conch. Icon. vol. iv. pl. i. fig. 2; Sowerby, Thesaurus, vol. iv. pl. ccccxxiii. fig. 5; Kobelt, Conch.-Cab. ed. 2, p. 10, pl. i. fig. 1.

Hab. China Sea (*Kiener, &c.*); Bay of Bengal, lat. $20^{\circ} 18'$ N., long. $90^{\circ} 50'$ E., in 65 fathoms (*'Investigator'*).

The specimens dredged alive in the Bay of Bengal are very fragile, being only about half-grown. Their presence in this locality to some extent confirms Reeve's assertion that this species was "collected by M. Rousseau, a zealous naturalist attached to the Jardin des Plantes, Paris, during a voyage to Madagascar and the Seychelle Islands."

12. *Lacuna indica*. (Pl. IV. fig. 7.)

Testa umbilicata, sordide albida, spiraliter striata; anfractus 3, celeriter crescentes, perconvexi, ultimus magnus, antice oblique descendens et subsolutus, circa umbilicum angustum acute carinatus, lineis incrementi oblique curvatis sculptus; apertura magna, alba, patula, late lunata, longit. totius $\frac{7}{10}$ adæquans; columella obliqua, recta, incrassata, margine supero infra umbilicum paulo incurvato vel excavato; labrum tenue, arcuatum; operculum membranaceum, tenuissime striatum.

Longit. 10 millim., diam. maj. 8, min. 5; apertura 7 longa, 5 lata.

Hab. Off Madras coast, lat. 16° 01' N., long. 81° 25' E., in 410 fathoms.

The striæ are somewhat deeply incised, somewhat irregular and inæquidistant, and quite evident to the naked eye. There are about twenty-two upon the body-whorl.

13. *Natica rufa*, var. (Pl. IV. figs. 14, 14 a.)

Hab. Off Calicut, Malabar coast, in 45 fathoms.

The specimens from this locality are coloured like the variety named *N. Swainsonii* by Philippi, but differ in being very much smaller and in having the umbilicus much more closed up by the columellar callosity. These differences may be merely the result of age, for the operculum of these small specimens agrees exactly with that of larger shells.

It is shelly, thickened, white above, but stained at the spiral end with a dirty olive tint; parallel with the outer or curved margin are two grooves, leaving a flattened ridge between them. The straight or columellar edge is peculiarly striated and serrated; the lower flat surface is covered with a bright yellow epidermis.

14. *Sigaretus (Eunaticina) tener*. (Pl. IV. fig. 8.)

Testa anguste rimata, ovata, subconica, tenuis, sordide albida, limo ferrugineo plus minus induta, striis spiralibus tenuibus lineisque incrementi cancellata; anfractus 4, celeriter crescentes, convexiusculi, sutura subprofunda sejuncti; apex saturate fuscus; anfr. ultimus obliquus, elongatus; apertura obliqua, longit. totius $\frac{3}{4}$ adæquans; columella leviter arcuata, tenuis, superne angusto dilatata et reflexa.

Longit. 21 millim., diam. maj. 14, min. 10; apertura 15 longa, 10 lata.

Hab. Bay of Bengal, 96 fathoms.

This species is remarkable for its peculiar form and the thinness of the shell. The nuclear whorl is of a deep brown

colour and hardly raised above the next, which is finely spirally striated, but looks somewhat smoother than the last two. The aperture is smooth within and tinted more or less with light brown. This is occasioned by the red-earthly deposit on the external surface being partially visible through the transparency of the shell.

15. *Capulus lissus*. (Pl. IV. figs. 4-6.)

Testa pileiformis, apice postice valde recurvato, sordide albida vel dilutissime rufescens, lineis incrementi striata, *haud radiatim sculpta*; anfractus 3, apicales duo (nucleus) globosi, læves; apex pone sed supra marginem aperturæ convolutus; apertura irregulariter rotunde ovata, pallide fuscescens; peristoma tenue, margine infra apicem incrassato.

Diam. maj. 11 millim., min. 8, alt. $5\frac{1}{2}$; apertura $8\frac{1}{2}$ longa, 7 lata.

Hab. Bay of Bengal, 90-102 fathoms.

The chief characteristic of this species is the absence of radiating sculpture, a feature common to most species of the genus *Capulus*.

16. *Turbo (Cantrainea) indicus*. (Pl. IV. figs. 13 a-c.)

Testa turbinata, imperforata, solida, alba; anfractus 4, superne declives, concavi, prope medium angulati vel carinati, celeriter crescentes, ultimus carinis 2-3 circa medium cinctus, striis spirali-bus tenuibus plus minus conspicuis lineisque incrementi obliquis sculptus; apertura obliqua, subrotundata, argenteo-margaritacea; labrum crassiusculum, antice leviter effusum; columella obliqua, arcuata, crassa, in medio tuberculo obsoleto munita, callo submargaritaceo latissimo labro juncta.

Diam. maj. 28 millim., min. 23, alt. 26; apertura 13 longa et lata. Operculum subplanum, album, in medio leviter concavum et suboliva-cum, infra paulo convexum, corneum, olivaceo-fuscum; anfractus circiter septem, primi quinque lente crescentes, penultimus et ultimus celeriter ampliati.

Hab. Off Colombo, lat. $6^{\circ} 29'$ N., long. $79^{\circ} 34'$ E., in 597 fathoms.

This species is remarkable for the uniform white colour, the concavity at the upper part of the whorls, the median angle or carination, and the two or three keels upon the last whorl. Of these, the uppermost is continuous up the spire, the lowermost is at the periphery, and the third, when present, is intermediate between the other two. It is with some hesitation that I venture to separate these specimens specifically from the *T. peloritanus*, Cantraine, as determined by Jeffreys

(P.Z.S.1883,p. 108). They agree with the Atlantic examples in general form and solidity, but are considerably larger, and the spiral striation is of a different character, being excessively fine in comparison. The figure given by Cantraine of *T. carinatus* (Mal. Méditerr. pl. vi. fig. 23), which is considered synonymous with *C. peloritanus*, if enlarged, would give a fair idea of the bicarinate example of the present species, excepting the aperture being too small. The opercula of both are identical.

17. *Scaphander andamanicus*. (Pl. IV. fig. 15.)

Testa ovata, tenuis, alba, hic illic ferrugineo tineta, transversim punctato-striata, superne et circa basin striis paucis haud punctatis cincta; spira immersa, concava; apertura magna, infra lata, superne angustata; labrum leviter arcuatum, tenuissimum, superne ad insertionem incrassatum callosum album; columella valde arcuata, intus convoluta, usque ad apicem perspicua, alba, incrassata.

Longit. 18 millim., diam. maj. 12, min. 9; apertura 18 longa, inferne 9 lata.

Hab. Andaman Sea, in 250 fathoms.

The punctured grooves, about 40 in number, are not always equidistant, and the punctures are also variable in size.

18. *Lepidopleurus similis*. (Pl. IV. figs. 9-12.)

Testa elongata, paulo angusta, in medio dorsi acute arcuata, sordide albida, intus alba, undique regulariter et eleganter granulata; areæ laterales modo leviter definitæ, lineas incrementi paucas exhibentes; valvæ medianæ (fig. 11) postice rectæ, breves; laminæ suturales parvæ sinu lato sejunctæ; laminæ insertantes nullæ; valva anterior (fig. 10) semicircularis, lamellis et fissuris haud instructa; valva posterior (fig. 12) mucrone centrali aliquanto acuto instructa; cingulum angustum, griseum, arenaceum, spiculis albis brevissimis, præsertim supra marginem externum, amictum. Longit. 16 millim., diam. 7.

Hab. Off Colombo, lat. 6° 32' N., long. 79° 37' E., in 675 fathoms.

Allied to *L. alveolus*, Sars, but more strongly granulated, with the lateral areas of the central valves faintly defined by a slight depression.

19. *Dentalium profundorum*. (Pl. IV. fig. 18.)

Testa magna, solida, leviter arcuata, longitudinaliter tenuissime striata, lincisque incrementi obliquis sculpta, sordide lutescens,

postice fissurata ; apertura fere circularis, intus alba, ad marginem obliquum tenuis, acuta.

Longit. 90 millim., diam. max. 10.

Hab. Off Colombo, lat. 6° 32' N., long. 79° 37' E., in 675 fathoms.

This species rather closely resembles the fossil *D. grande*, Deshayes, but the style of striation is not quite the same, and the form is not quite so slender. The fine thread-like slightly rounded riblets are about eighty in number, and usually rather broader than the intervening striæ. None of the three specimens examined are perfect posteriorly, so it is impossible to describe the fissure properly. In the largest example a mere notch indicates the existence of a slit in the normal position.

In a second specimen there is a distinct *lateral* fissure 3 millim. in length, but whether this is an accidental fracture is not quite certain. The surface of this species appears to be subject to erosion, for patches are broken away here and there throughout the entire length of the shell.

D. capillosum, Jeffreys, is a closely allied species from the Atlantic, but somewhat more slender in form and not quite similar in sculpture.

20. *Dentalium usitatum*. (Pl. IV. figs. 16, 16 a.)

Testa parva, mediocriter gracilis, alba, parum arcuata, liris longitudinalibus tenuissimis circiter 20-25 æqualibus instructa, lineis incrementi obliquis sculpta, ad apicem haud fissa.

Longit. 31 millim., diam. max. 2.7.

Hab. Off Colombo, lat. 6° 32' N., long. 79° 37' E., in 675 fathoms, and Bay of Bengal in 597 fathoms.

The two specimens examined do not look as if they are young shells. The white colour is varied here and there with narrow oblique somewhat pellucid zones.

21. *Dentalium insolitum*. (Pl. IV. figs. 17, 17 a.)

Testa gracilis, conspicue arcuata, lævis, polita, subpellucida, alba, haud circulariter tubulata, utrinque leviter plana, lineis incrementi tenuissimis striata, ad apicem haud fissa.

Longit. 36 millim., diam. max. 2.5.

Hab. Bay of Bengal, in 597 fathoms.

The peculiarity of this species consists in its being a little compressed, so that the tube is not circular. It is broadest

along the concave curve, which is not so round as the opposite side, and almost defined by lateral angles.

22. *Cytherea (Caryatis) pudicissima*. (Pl. V. figs. 3, 4.)

Testa parva, inæquilateralis, ovata, mediocriter convexa, alba, concentricè fortiter striata; margo dorsi posticus leviter obliquus, rectiusculus, anticus valde declivis, brevior; margo ventralis regulariter et late curvatus; umbones parvi, haud contigui, incurvati; lunula elongato-cordata, in medio prominens, incrementi lineis striata, linea impressa circumscripta; area nulla; cardo normalis, mediocriter fortis; pagina interna alba, lævis; cicatrices haud conspicuæ, pyriformes; sinus pallii haud profundus, obtuse cuneatus.

Longit. 13 millim., alt. 10·3, diam. 7.

Hab. Off Ganjam coast, 2½ miles south-east of Gopalpur, in 89–93 fathoms.

This species in colour and sculpture is very like *Dione pura*, Deshayes*, from Callao in Peru, but differs from it in form, being less trigonal, and not narrowed posteriorly. The umbones also are less prominent and not quite so anterior in position.

23. *Abra maxima*, Sowerby. (Pl. V. figs. 5, 6.)

Syndesmya maxima, Sowerby, Proc. Malac. Soc. 1894, vol. i. p. 40, pl. v. fig. 5.

Testa fere æquilateralis, utrinque hians, oblonga, antice rotundata, postice acuminata, albida, nitida, lineis incrementi tenuissimis striata, striisque paucis radiantibus haud conspicuis sculpta; margo dorsi utrinque rectiusculus, declivis, ventralis late excurvatus; umbones parvi, acuti; lunula lanceolata, leviter excavata, utrinque carina marginata; valvæ tenues, dextra carina ab umbone usque ad extremitatem posticam instructa, sinistra sulco minime profundo in eodem loco sculpta; dentes cardinales subæquales, laterales valvæ dextræ tenues, æquidistantes; ligamentum internum perobliquum, externum tenue, angustum; pagina interna nitida, iridescens, radiatim et transversim substriata; cicatrix anterior angusta, elongata, postica latior, pyriformis; sinus pallii profundissimus, angustus, ad extremitatem rotundatus.

Longit. 33 millim., alt. 20, diam. 10.

Hab. Bay of Bengal, in 128 fathoms, dead shells only; off

* Cat. Conch. Biv. Mus. Brit., Veneridæ, p. 68; Römer, Monogr. *Cytherea* in Novitat. Conch. p. 84, pl. xxiii. figs. 1–1 b.

Kistna delta, lat. $15^{\circ} 43' 30''$ N., long. $81^{\circ} 19' 30''$ E., in 678 fathoms, living examples.

In the left valve within the keel which marks off the elongate lunule is a second keel, forming, as it were, an inner lunule. This feature is wanting in the opposite valve. The delicate external ligament is supported by thin reflexed nymphæ, that in the left valve jutting out behind like a lateral tooth. The single cardinal in this valve is triangular, acute above, and fits in between the two divergent teeth in the right valve.

The dead specimens from 128 fathoms have a pale pinkish tint; but this is probably due to staining after death.

24. *Cuspidaria* (*Myonera*) *caduca*. (Pl. V. figs. 9, 10.)

Testa fragilis, longe rostrata, alba, epidermide tenuissima induta, concentricè subfortiter plicata, striisque incrementi minutis sculpta; margo dorsi anticus leviter arcuatus, vix declivis, posticus valde incurvatus; margo anterior rotundatus, ventralis paulum convexus, prope rostrum parum inflexus; umbones medioeriter prominentes, postice inclinati; area dorsalis antica elongata, lævis, postica lanceolata, usque ad extremitatem rostri extensa, carina filiforme prope umbones marginata; carina secunda similis in utraque valva ab umbone breviter postice producta; cardo edentulus; fossa ligamenti parva, postice declivis.

Longit. 32 millim., alt. 14, diam. 10.

Hab. Andaman Sea, in 188–220 fathoms.

The plicæ are rather acute, somewhat irregular near the middle of the valves, and are attenuated at the commencement of the rostrum, upon which they become mere striæ.

In general external appearance this species considerably resembles *C. chinensis*, Gray. It is, however, not so high, the rostrum is longer, the texture of the shell much thinner, and the strong posterior tooth of the right valve is wanting.

25. *Cuspidaria* (*Cardiomya*) *Alcocki*. (Pl. V. fig. 8.)

Testa paulo inæquivalvis, tenuissima, subglobosa, medioeriter longe rostrata, alba, subpellucida, antice oblique truncata, inferne rotundata, postice infra rostrum haud profunde sinuata; valvæ supra dimidium posticum carinis conspicuis arcuatis acutis quatuor aliisque paucis minoribus interjectis ornatae, ante carinas radiatim tenuissime liratae, lineisque incrementi subancellatae; rostrum supra levissime incurvatum, extremitatem versus angustatum, liris tenuibus 4–5 radiantibus in utraque valva instructum; umbones parvi, contigui, incurvati; dens cardinalis unicus pone

umbonem valvæ dextræ brevis, prominulus; valva sinistra edentula; fossa ligamenti minima, triangularis.

Longit. 16 millim., alt. 9.5, diam. 7.3.

Hab. Bay of Bengal, lat. 6° 29' N., long. 29° 34' E., in 597 fathoms. (The longitude should probably be 92° not 29°.)

The prominent characteristics of this species are its form, the oblique truncation of the anterior end being peculiar, and the four prominent keels upon the hinder half of the valves. The right valve is a trifle smaller than the left, and this is most noticeable at the posterior end when the valves are closed. The inner surface exhibits grooves corresponding to the external costæ, which, being produced at the extremities, give to the ventral margin a festooned appearance.

Named in honour of Dr. A. Alcock of the 'Investigator.'

26. *Lucina bengalensis*. (Pl. V. figs. 1, 2.)

Testa mediocriter tenuis, irregulariter rotundata, paulo inæquilateralis, antice brevior; valvæ parum convexæ, cretaceæ, epidermide tenui grisea indutæ, lamellis concentricis tenuissimis striisque interjectis ornatae, lunula lanceolata instructæ; margo dorsi posticus leviter arcuatus et declivis, anticus infra umbones paulo excavatus; ventris margo valde curvatus; dentes cardinales duo in utraque valva inæquales, divergentes, lateralis unicus anticus inconspicuus; pagina interna alba, minute subasperata; cicatrix antica elongata, angustissima, postica ovata.

Longit. 37 millim., alt. 31, diam. 13.

Hab. Off the delta of the Godaveri, lat. 16° 01' N., long. 81° 25' E., in 410 fathoms.

This species agrees very closely, excepting in form, with *L. lamellata*, Smith*, from the Straits of Magellan. The concentric lamellæ, however, are perhaps a trifle finer and closer together, and the anterior adductor scar is narrower.

27. *Limopsis indica*. (Pl. V. fig. 7.)

Testa inæquilateralis, crassiuscula, valde oblique ovata, antice arcuata, postice oblique subtruncata, alba, epidermide olivaceo-fusca hirsuta amicta, striis numerosis radiantibus aliisque concentricis decussata; umbones parvi, acuti; area ligamenti profunda, excavata, ligamento parvo mediano rhombiformi instructa; dentes cardinales circiter 14 in utraque valva; pagina interna alba, radiatim tenuissime striata, margine externo crasso plano circumdata.

Longit. 20 millim., alt. 18, diam. 9.

Exemplum alterum 17 longa, 16 alta, 10 crassa.

Hab. Colombo Lighthouse, S. 64° E. 13½ miles, in 142-400 fathoms.

* Report Lamellibranchiata 'Challenger,' p. 173, pl. xiii. figs. 1-1 b.

Many of the species of the genus *Limopsis* are very much alike, and it is chiefly on account of difference of locality and form that they have been separated. The present species considerably resembles *L. pelagica*, Smith, but is not of quite the same form, has thicker, more solid valves, and a coarser, more hairy epidermis. *L. Cumingii*, A. Adams, is also closely allied.

All the specimens are more or less coated with a rust-red earthy deposit.

28. *Amussium Alcocki*. (Pl. V. figs. 15-16.)

Testa fragilis, subdiaphana, albida, plus minus nitens; valvæ compressæ; valva dextra fere plana, dilutissime subrosea, concentricè striata, marginem versus lamellis tenuissimis ornata, sinistra profundior, albo-pellucida, fere argentea, similiter striata, radiatimque exilissime lirata et striata, radiis tribus paulo prominentibus posterioribus exhibens: auriculæ minimæ, subæquales, lincis incrementi, et liris vel striis paucis radiantibus subobsoletis sculptæ; umbones acuti, ad angulum circa 115° convergentes; pagina interna nitida, liris undecim haud ad marginem extensis (illis valvæ dextræ paulo crassioribus) instructa.

Longit. 40 millim., alt. 41, diam. 8.

Hab. Laccadive Sea, in 740 fathoms; also west of Andaman Islands, lat. $13^{\circ} 47' 30''$ N., long. $92^{\circ} 36'$ E., in 561 fathoms.

The three slightly raised rays down the posterior side of the left valve are indicated on the inner surface by corresponding shallow depressions.

The largest specimen from the latter of the above localities exhibits rather more concentric lamellation on the left valve than the examples from the Laccadive Sea.

This species is very closely allied to *A. Watsoni*, Smith, but is not so rounded; the right valve has more feeble concentric sculpture, and the radiating lines of the left valve are not so strong.

29. *Amussium andamanicum*. (Pl. V. figs. 13, 14.)

Testa *A. Alcocki* simillima, sed minus circularis, angulo apicali acutiore, lamellis valvæ sinistrae magis prominentibus, lincis radiantibus fere omnino carentibus, lirisque internis gracilioribus, præcipue illis prope medium valvarum plus minus obsoletis.

Longit. 25 millim., alt. 33, diam. 6.5.

Hab. Andaman Sea, in 688-922 fathoms.

Both in this species and *A. Alcocki* the straight hinge-line of the right valve is slightly serrated. The umbonal angle in this form is scarcely greater than 90° , and the general out-

line is higher in proportion to the length. The interior towards the outer margin is beautifully pearly.

30. *Amussium Jeffreysii*, Smith.

Amussium Jeffreysii, Smith, Lamellibr. 'Challenger' Exped. p. 310, pl. xxiii. figs. 2-2, c.

Hab. Off Koukan coast, lat. 15° 29' N., long. 72° 41' E., in 559 fathoms.

These specimens agree precisely with those obtained by the 'Challenger' off the Philippine Islands in 375 fathoms.

31. *Amussium caducum*, Smith.

Amussium caducum, Smith, Lamellibr. 'Challenger' Exped. p. 309, pl. xxiii. figs. 1-1 c.

Hab. Off delta of the Godaveri River, lat. 16° 01' 00" N., long. 81° 25' 00" E., in 410 fathoms.

The specimens from this locality correspond in every particular with the types from the China Sea obtained by the 'Challenger' in 700 fathoms.

32. *Amussium solitarium*. (Pl. V. figs. 11, 12.)

Testa subcircularis, pellucido-alba, subnitida; valva dextra leviter convexa, concentrice regulariter striata, sinistra æque convexa, liris tenuibus radiantibus paulo arcuatis instructa, lineisque incrementi substriata; auriculæ parvæ, haud radiatim sculptæ; umbones medioeriter acuti, ad angulum circa 130° convergentes; pagina interna nitida, liris undecim in utraque valva instructa. Longit. 16 millim., alt. 16, diam. 4.

Hab. Bay of Bengal, lat. 12° 20' N., long. 85° 8' E., in 1803 fathoms.

Allied to *A. Watsoni*, but with the radiating liræ of the left valve more remote and without distinct cancellation. The internal liræ are curved, those of *A. Watsoni* being nearly straight.

EXPLANATION OF THE PLATES.

PLATE III.

- Fig. 1. *Conus australis*.
 Fig. 2. — *planiliratus*.
 Fig. 3. *Murex malabaricus*.
 Figs. 4, 5. *Pleurotona congener*.
 Fig. 6. — (*Surcula*) *subcorpulenta*.
 Figs. 7, 8. — (—) *symbiotes*.
 Fig. 9. *Latirus andamanicus*.

PLATE IV.

- Figs.* 1, 2. *Conus coromandelicus*.
Fig. 3. *Nassaria coromandelica*.
Figs. 4, 5, 6. *Capulus lissus*.
Fig. 7. *Lacuna indica*.
Fig. 8. *Sigaretus (Eunaticina) tener*.
Figs. 9-12. *Lepidopleurus similis*.
Figs. 13-13 c. *Turbo (Cantrainca) indicus*.
Figs. 14, 14 a. *Natica rufa*, var.
Fig. 15. *Scaphander andamanicus*.
Figs. 16, 16 a. *Dentalium usitatum*.
Figs. 17, 17 a. — *insolitum*.
Fig. 18. — *profundorum*.

PLATE V.

- Figs.* 1, 2. *Lucina bengalensis*.
Figs. 3, 4. *Cytherea (Caryatis) pudicissima*.
Figs. 5, 6. *Abra maxima*.
Fig. 7. *Limopsis indica*.
Fig. 8. *Cuspidaria (Cardiomya) Alcocki*.
Figs. 9, 10. — (*Myonera*) *caduca*.
Figs. 11, 12. *Amussium solitarium*. Exterior of right and left valves.
Figs. 13, 14. — *andamanicum*. Interior and exterior of left valve.
Figs. 15, 16. — *Alcocki*. Exterior and interior of left valve.

XXV.—On new Species of Histeridæ.

By G. LEWIS, F.L.S.

THIS notice of new species of Histeridæ is supplementary to papers which from time to time have appeared in this Magazine; the last was published in June 1893 (ser. 6, vol. xi. pp. 417-430).

List of Species and new Synonymy.

Hololepta higonæ, <i>nom. n.</i>	Pachycrærus puncticollis.
<i>parallela</i> , Lew.	Eretmotus valens.
Anaglymma afra.	Sternocœlis acutangulus, <i>Lew.</i>
Platysoma uniforme.	<i>punctulatus</i> , <i>Luc.</i>
— chinense.	— politus, <i>Sch.</i>
— quadricolle.	<i>cancer</i> , <i>Lew.</i>
Cyrturus assamensis.	<i>Sedilloti</i> , <i>Lew.</i>
— Thugi.	Notolister Edwardsii, <i>Mars.</i>
Phelister capensis.	Carcinops Blandfordi.
Pachycrærus completus, <i>Gerst.</i>	Tryponæus singularis.
— elegans.	Byzenia formicicola, <i>King.</i>

Hololepta higonæ, *nom. n.*

I propose this name as a substitute for *H. parallela*, *Lew.* 1884, as I find that in 1868 G. v. Koch described a species